gametogenesis and seed formation in selected diploid genotypes of Boechera stricta that reproduce either sexually or by apomixis. A detailed analysis of female gametophyte formation indicates that Boechera stricta exhibits a combination of classic abnormalities reminiscent of elements of diplospory and apospory. To determine a possible link between epigenetic mechanisms controlling de novo DNA methylation and apomixis, we have a developed a simple genetic transformation procedure that allows the recovery of transgenic plants harboring reporter genes under the control of specific gametophytic promoters of Arabidopsis thaliana , a relative of Boechera sp. We expect that our developmental comparisons will allow a better understanding of the genetic basis and molecular mechanisms that distinguish sexuality and apomixis in flowering plants.

Plant Reproduction

Béatrice Denoyes - Poster-D268

Abstract Title: DECIPHERING THE BALANCE BETWEEN SEXUAL AND ASEXUAL PLANT REPRODUCTION IN AN HERBACEOUS PERENNIAL, THE STRAWBERRY

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Abstract

Strawberry, the major berry fruit crop, is a relevant model to study the occurrence and concomitance of various developmental processes/ events . Vegetative reproduction through stolons (elongated stems) and sexual reproduction through inflorescences occur successively or jointly, depending on the genotype, cultural technique and environment. The control of the trade-off between flowering and runnering is crucial for managing the production of plants in nurseries and the production of fruits in fields, tunnels or greenhouses. The runnering and flowering pathways likely interact. We recently showed in diploid strawberry that the gibberellin biosynthetic enzyme GA20ox plays a key role in controlling this trade-off by regulating the fate of axillary meristem to either stolon or inflorescence. We also showed that the floral repressor FvTFL1 controls perpetual flowering (PF). Interestingly, in the cultivated octoploid strawberry, a single major locus FaPFRU that does not involve GA20ox or TFL1 controls PF and displays opposite effects on flowering and runnering. We further identified by using longitudinal data analysis methods a locus controlling the flowering intensity of the last phase of PF. We will present how these results deepen our understanding of the underlying mechanisms and allow a better control of fruit yield in strawberry.

Plant Reproduction

Osvaldo Ruiz - Poster-D232

Abstract Title: ATEMPTING THE INDUCTION OF AUTONOMOUS EMBRYOGENESIS IN OVULES OF ARABIDOPSIS THALIANA